

WHAT IS CLAIMED IS:

- 1                   1.       An access method in a storage device comprising:  
2                   receiving received data in connection with a first operation on the storage  
3 device;  
4                   performing the first operation if a predetermined data sequence in the received  
5 data is not detected; and  
6                   performing a predetermined operation that is not the first operation in response  
7 to detecting the predetermined data sequence in the received data.
- 1                   2.       The method of claim 1 further comprising performing the first  
2 operation in addition to performing the predetermined operation, in response to detecting the  
3 predetermined data sequence in the received data.
- 1                   3.       The method of claim 1 wherein the predetermined operation is  
2 performed instead of the first operation, in response to detecting the predetermined data  
3 sequence in the received data.
- 1                   4.       The method of claim 1 wherein the received data further includes a  
2 second data sequence in addition to the predetermined sequence, wherein the predetermined  
3 operation is indicated by the second data sequence.
- 1                   5.       The method of claim 1 wherein performing the predetermined  
2 operation produces result data.
- 1                   6.       The method of claim 5 further comprising receiving a read operation  
2 on the storage device and producing the result data in response to the read operation.
- 1                   7.       The method of claim 6 wherein the step of producing result data  
2 includes storing the result data in a memory component of the storage device at a  
3 predetermined location in the memory component, wherein the read operation includes  
4 address information indicative of the predetermined location.
- 1                   8.       The method of claim 1 wherein the first operation is a write operation,  
2 wherein performing the first operation includes storing the received data in a memory  
3 component of the storage device.

1                   9.     The method of claim 8 wherein performing the predetermined  
2 operation produces result data that is stored in a data store other than the memory component.

1                   10.    The method of claim 8 wherein performing the predetermined  
2 operation produces result data that is stored in the memory component.

1                   11.    The method of claim 8 wherein the received data comprises an address  
2 portion and a data portion, wherein the data portion comprises the predetermined data  
3 sequence.

1                   12.    The method of claim 11 wherein the data portion further comprises a  
2 command identifier that identifies the predetermined operation.

1                   13.    The method of claim 8 wherein the received data comprises an address  
2 portion and a data portion, wherein the address portion comprises the predetermined data  
3 sequence.

1                   14.    The method of claim 13 wherein the data portion comprises a  
2 command identifier that identifies the predetermined operation.

1                   15.    A storage device having a memory component and a control  
2 component, the control component configured to operate according to the method of claim 1.

1                   16.    The storage device of claim 15, wherein the control component is  
2 further configured to communicate with a computing device.

1                   17.    A method for operating a data storage device comprising:  
2 receiving first data associated with a write operation;  
3 if the first data includes a predetermined sequence, then performing at least a  
4 first operation other than the write operation; and  
5 if the first data does not include the predetermined sequence, then performing  
6 the write operation including storing at least some of the first data to a memory.

1                   18.    The method of claim 17 wherein performing the first operation  
2 generates result data, wherein responsive to a subsequent read operation, the result data is  
3 produced as a response to the read operation.

1                   19.     The method of claim 18 further comprising storing the result data in a  
2 data store other than the memory.

1                   20     The method of claim 18 further comprising storing the result data in  
2 the memory.

1                   21.     The method of claim 20 wherein the result data is stored beginning at a  
2 predetermined location in memory and the subsequent read operation includes an address  
3 indicative of the predetermined location.

1                   22.     A method for accessing a storage device comprising:  
2                   communicating a first write operation to a storage device, the first write  
3 operation having associated therewith first data comprising address data and write data,  
4 wherein the write data is written to a memory location of a memory indicated by the address  
5 data;  
6                   communicating a second write operation to the storage device, the second  
7 write operation having associated therewith second data comprising a predetermined data  
8 sequence, wherein the storage device performs a predetermined operation other than a write  
9 operation in response to detecting the predetermined data sequence; and  
10                  communicating a read operation subsequent to the second write operation,  
11                  wherein the predetermined operation produces result data,  
12                  wherein the storage device responds to the read operation with the result data.

1                   23     The method of claim 22 wherein the step of communicating a first  
2 write operation is performed in response to performing a first write operation to a file, the  
3 step of communicating a second write operation is performed in response to performing a  
4 second write operation to the file, and the step of communicating a read operation is  
5 performed in response to performing a read operation on the file.

1                   24.     The method of claim 23 wherein the steps of performing a second  
2 write operation to the file and performing a read operation on the file are performed in  
3 response to making an API (application programmer's interface) call to perform the  
4 predetermined operation in the storage device.

1                   25.     The method of claim 24 wherein the steps of making an API call,  
2 performing a second write operation to the file, and performing a read operation on the file  
3 are performed by program code which comprise one or more program code portions of an  
4 application.

1                   26.     The method of claim 25 wherein the step of communicating a first  
2 write operation, communicating a second write operation, and communicating a read  
3 operation are performed by program code which comprise one or more program code  
4 portions of an OS (operating system).

1                   27.     The method of claim 22 wherein the storage device is configured to  
2 perform a plurality of predetermined operations.

1                   28.     The method of claim 27 wherein the second data further comprises a  
2 command data sequence that is indicative of the predetermined operation.

1                   29.     The method of claim 27 wherein the second data further comprises  
2 address data, wherein the predetermined data sequence constitutes the address data.

1                   30.     The method of claim 22 wherein the result data is stored in a data store  
2 other than the memory.

1                   31.     The method of claim 22 wherein the result data is stored beginning at a  
2 predetermined location in the memory.

1                   32.     A method for accessing a data storage device comprising:  
2                   communicating an indication to the data storage device to perform a first  
3 operation, the first operation being one of a plurality of first device operations;  
4                   communicating first data to the data storage device, the first data being  
5 associated with the first operation;  
6                   determining whether to perform at least a second operation based on data  
7 contained in the first data, the second operation being exclusive of the plurality of first device  
8 operations.

1                   33.     The method of claim 32 wherein the data storage device has a  
2 corresponding command set associated with the first device operations, wherein the second

3 operation is not associated with any commands in the command set, wherein the step of  
4 communicating an indication is a step of communicating a command from the command set.

1 34. The method of claim 33 wherein the data storage device has only a  
2 single corresponding command set.

1 35. The method of claim 32 further comprising performing the second  
2 operation instead of the first operation if the first data contains a predetermined sequence of  
3 data.

1 36. The method of claim 32 further comprising performing the second  
2 operation in addition to performing the first operation if the first data contains a  
3 predetermined sequence of data.

1 37. The method of claim 32 wherein the first operation is a write operation  
2 and the first data is data to be written by the write operation.

1 38. The method of claim 32 wherein the steps of communicating include  
2 asserting signals on one or more signal lines of the data storage device.

1 39. The method of claim 32 wherein the steps of communicating include  
2 transmitting data over one or more data lines of the data storage device.

1 40. A method of accessing a storage device comprising:  
2 providing a plurality of first operations in the storage device, each first  
3 operation having an associated command, thereby defining a command set;  
4 providing a plurality of second operations in the storage device, the command  
5 set being absent any commands that are associated with the second operations;  
6 communicating to the storage device a command associated with one of the  
7 first operations, including communicating data associated with the command;  
8 detecting a predetermined data sequence in the data associated with the  
9 command, and in response thereto, performing one of the second operations; and  
10 if the data associated with the command is absent the predetermined data  
11 sequence, then performing one of the first operations associated with the command.

1 41. The method of claim 40 wherein performing one of the second  
2 operations produces result data.

1                   42.     The method of claim 40 wherein the data associated with the command  
2 includes data indicative of one of the second operations.

1                   43.     The method of claim 42 wherein the command is a write command.

1                   44.     The method of claim 42 wherein one of the first operations is  
2 associated with the command, the method further comprising performing the associated first  
3 command in addition to performing one of the second operations.

1                   45.     The method of claim 40 further comprising communicating a  
2 subsequent command to the storage device, the subsequent command having data associated  
3 therewith, wherein the data is indicative of one of the second operations.

1                   46.     The method of claim 40 wherein performing the second operation  
2 produces result data, the method further comprising communicating a subsequent command  
3 that is indicative of a read operation, detecting the subsequent command and in response  
4 thereto responding with the result data.

1                   47.     The method of claim 46 wherein the steps of communicating are  
2 performed by executing first computer program code.

1                   48.     The method of claim 47 wherein executing the first program code is  
2 performed in response to executing second program code.

1                   49.     The method of claim 48 wherein the first program code is a constituent  
2 part of an operating system, wherein the second program code is a constituent part of an  
3 application program.

1                   50.     A storage device comprising:  
2                   a memory component having a corresponding command set;  
3                   a control component operatively coupled to the memory component for  
4 writing data to the memory component and for reading data from the memory component;  
5 and  
6                   and interface operably coupled to the control component and configured for  
7 communication with a host device,

8                   the control component configured to perform a plurality of device operations  
9   and a plurality of extended operations, wherein each of the device operations is associated  
10 with a command in the command set,  
11                   the control component further configured to detect commands communicated  
12 from a host device wherein the device operation associated with a communicated command  
13 can be performed,  
14                   the control component further configured to detect a predetermined sequence  
15 of data in first data associated with a first command from the command set, and to perform  
16 one of the extended operations in response to detecting the predetermined sequence of data.

1                   51.    The device of claim 50 wherein the extended operations do not have  
2 associated commands in the command set.

1                   52.    The device of claim 50 further comprising a data store, wherein at least  
2 one of the extended operations generates result data that can then be stored in the memory  
3 component.

1                   53.    The device of claim 50 wherein at least one of the extended operations  
2 generates result data, wherein the control component is further configured to store the result  
3 data beginning at a predetermined location in the memory.

1                   54.    The device of claim 50 wherein the first command is a write command  
2 and the first data comprises an address portion and a data portion.

1                   55.    The device of claim 54 wherein the data portion comprises the  
2 predetermined sequence of data and an extended command specifier, wherein the control  
3 component is further configured to perform one of the extended operations based on the  
4 extended command specifier.

1                   56.    The device of claim 54 wherein the address portion comprises the  
2 predetermined sequence of data and the data portion comprises an extended command  
3 specifier, wherein the control component is further configured to perform one of the extended  
4 operations based on the extended command specifier.

1           57.     The device of claim 50 wherein the control component is further  
2 configured to perform a device operation corresponding to the first command in addition to  
3 performing the extended operation in response to detecting the predetermined sequence of  
4 data.

1           58.     The device of claim 50 the extended operation is performed instead of  
2 performing a device operation corresponding to the first command in response to detecting  
3 the predetermined sequence of data.

1           59.     The device of claim 50 wherein the control component comprises a  
2 controller and one or more processing units, the one or more processing units configured to  
3 perform the extended operations, the controller comprising logic to detect the predetermined  
4 sequence of data, the controller operatively coupled to operate the one or more processing  
5 units to perform an extended operation in response to detecting the predetermined sequence  
6 of data.

1           60.     A host device configured to communicate with the storage device of  
2 claim 50 comprising first software for communicating one or more of the commands to the  
3 storage device.

1           61.     The host device of claim 60 further comprising second software for  
2 performing file input and file output operations, wherein the first software communicates one  
3 or more of the commands to the storage device in response to the file input and file output  
4 operations.

1           62.     A method for accessing a memory device, the memory device  
2 configured to perform a plurality of first operations and a plurality of second operations, each  
3 of the first operations having an associated command, the memory device further configured  
4 to respond to one of the commands communicated thereto by performing its associated first  
5 operation, the method comprising:

6                 detecting a predetermined sequence of two or more commands communicated  
7 to the storage device;

8                 if the predetermined sequence of two or more commands is detected, then  
9 performing one of the second operations.



1                    63.    The method of claim 62 wherein the second operation that is  
2 performed is based on the sequence of commands comprising the predetermined sequence.

1                    64.    The method of claim 62 wherein if a second predetermined sequence  
2 of two or more commands is detected then performing another one of the second operations.